

*Peltatus trotteriana*, Bs. Cape Province.

Fig. 2. Jaw.  $\times 12$ .

Fig. 2 a. Extremity of the foot.  $\times 4\cdot5$ .

*Kerkophorus phœdimus*, M. & P. Maritzburg.

Fig. 3. Part of the generative organs.  $\times 8$ .

PLATE VI.

*Peltatus trotteriana*, Bs.

Fig. 1. Animal with shell removed, seen from the right side.  $\times 4\cdot5$ .

Fig. 1 a. The same, from left side.  $\times 4\cdot5$ .

Fig. 1 b. Portion of the generative organs.  $\times 4\cdot5$ .

Fig. 1 c. The male organ.  $\times 8$ .

*Peltatus natalensis*, Pfr. Port Elizabeth.

Fig. 2. The generative organs.  $\times 4\cdot5$ .

PLATE VII.

*Kerkophorus melvilli*, sp. n. Equeefa.

Fig. 1. Portion of a spermatophore.  $\times 12$ .

Fig. 1 a. Three central teeth of the radula.  $\times 368$ .

Fig. 1 b. Nos. 12 to 15, transition teeth.  $\times 368$ .

Fig. 1 c. Lateral teeth about 32 from the extreme margin.

Fig. 1 d. 8 teeth nearer the margin.

*Peltatus capsula*, Bs. Simonstown.

Fig. 2. Generative organs.  $\times 4\cdot5$ .

Fig. 2 a. A spermatophore complete.  $\times 18$ .

Fig. 2 b. A portion of same, A-B.  $\times 24$ .

XIV.—*Descriptions and Records of Bees.*—XLI.

By T. D. A. COCKERELL, University of Colorado.

*Trigona cassiæ*, Cockerell.

Additional workers collected by Mr. Turner at Mackay, Queensland, show that usually the scutellum has a broad interrupted cream-coloured band and a spot of the same colour on each axilla. The scutellar band may be only notched, not interrupted, and the axillar spots may be very minute. The new specimens are from flowers of *Cassia*, except one from *Eucalyptus*.

*Trigona carbonaria*, Smith.

When describing *T. cassiæ*, I suggested that it was perhaps the species recorded by Friese from Mackay as *T. car-*

*bonaria*. However, I now have before me two workers of *carbonaria*, collected by Mr. Turner at Mackay, April 1900, at flowers of *Xanthorrhæa*, and September 1894. The latter bears the number 318, which was also used for male *cassia*.

*Megachile lanata* (Fabricius).

Mr. W. Büthn sends me a female which he obtained near Gordon Town, Jamaica, 1911. The species is East Indian, and has doubtless been introduced, as it has in Trinidad. Fox has described it from Kingston, Jamaica, as *Megachile martindalei*. In Turton's edition of the 'Systema Naturæ,' *Apis lanata* is said to occur in the "South American Islands."

*Centris lepeletieri*, sp. n.

*Centris hæmorrhoidalis*, Lepeletier, Hist. Nat. Ins. Hyménop. ii. p. 155.  
(S. Domingo.)

The Fabrician *C. hæmorrhoidalis* was briefly described from the West Indies, no special locality being cited. I believe the name may properly be applied to the Jamaican species, which differs from that of S. Domingo by having the first four abdominal segments and the base of the fifth blue in the male, and in the female the first four blue, the apical margin of the fourth reddish. In the face-markings *C. lepeletieri* resembles *C. elegans*, Sm., from St. Vincent, rather than the Jamaica insect. I have a pair of *C. hæmorrhoidalis* collected by Mr. Büthn near Gordon Town, Jamaica, from which I note some characters not brought out by the published descriptions.

*Centris hæmorrhoidalis* (Fabricius).

♂.—Anterior tibiæ with a longitudinal cream-coloured stripe; posterior long hairs on hind basitarsus tipped with white.

♀.—Clypeus black; very sparsely punctured, with a small round cream-coloured spot near each anterior corner; lateral face-marks reduced to a stripe along each orbital margin; a small triangular supra-clypeal mark; anterior tibiæ with a short oblique white stripe; second abdominal segment without the lateral light spots seen in the male; hind basitarsal hairs not tipped with white.

*Hyleoides concinna* (Fabricius).

Sydney and Cook's River, Australia (*Froggatt*).

*Pachyprosopis angophoræ*, sp. n.

♂.—Length about 6 mm.

Black, wholly without metallic lustre; legs and scape bright chrome-yellow; flagellum yellow suffused with ferruginous, the last four joints black, and a blackish suffusion extending down the upper side of four more; scape thick; clypeus and supraclypeal area brilliantly shining, sparsely punctured; mouth-parts prosopiform, maxillary palpi quite long; head as in *Euryglossa*, not specially enlarged; front densely punctured; mesothorax and scutellum finely and distinctly, but less densely, punctured; a beaded furrow runs along hind margin of postscutellum; tegulæ brownish piceous, with a yellow spot. Wings clear, with dark reddish-brown nervures and stigma; venation as usual in the genus; femora broad; hind tibiæ robust; hind basitarsus curved, thickened at base, with an inward projection, beyond this concave on the inner side, with a few curved erect spines. Abdomen broad, dullish, with a subsericeous lustre, the surface under the microscope seen to be covered as densely as possible with regular, well-defined, transversely oval punctures; the mesothorax between the punctures is microscopically tessellate.

*Hab.* Sydney, New South Wales, at flowers of the Myrtaceous *Angophora*, December 1, 1910 (*W. W. Froggatt*, 110). Two specimens.

Very distinct from all other described *Pachyprosopis* by the wholly black body.

*Pachyprosopis flavicauda*, sp. n.

♀.—Length 5 mm. or slightly over.

Black, with the abdomen reddish yellow at apex and partly at sides; labrum, and mandibles except at apex, pale red; face and front brilliantly shining; clypeus with sparse distinct punctures; front microscopically reticulate, with very sparse minute punctures; clypeus low and broad, the supraclypeal area very large; head of ordinary size, as in *Euryglossa*; antennæ ferruginous beneath, the flagellum thick; mesothorax microscopically reticulated, with sparse weak punctures; abdomen with microscopical sculpture as in *P. angophoræ*; tegulæ light rufo-testaceous; legs pale ferruginous, with the femora mainly dark, at least behind, and the tibiæ also with large dark marks. Wings clear, nervures and stigma sepia. Abdomen with the last segment, the penultimate (except a black band at extreme base, broadly lobed in middle, not reaching sides), and the

posterior apical corners of the second to fourth reddish orange or orange ferruginous.

*Hab.* Sydney, New South Wales, at flowers of *Angophora*, December 1, 1910 (*W. W. Froggatt*, 111).

Known from all the other *Pachyprosopis* by the black abdomen with light apex. On account of the small size, and quite different sculpture of head and thorax, I cannot regard this as the female of *P. angophoræ*. Two specimens were sent.

*Pachyprosopis humeralis*, sp. n.

♂.—Length about  $4\frac{1}{2}$  mm.

Black, the abdomen very dark brown, with yellow bands at the extreme bases of the second to fourth segments, or only on the second; face below antennæ, labrum, mandibles (except tips), cheeks (ending some distance below top of eye), scape and frontal mark, all brilliant chrome-yellow; the frontal mark, connecting with the supraclypeal, is large and circular or subquadrate; the yellow lateral marks extend above the level of the antennæ very broadly, with a further linear extension along the orbit, the whole like a hand with the index-finger pointed; flagellum dull yellowish beneath; third antennal joint extremely short, a mere ring, fourth twice as broad as long; facial foveæ linear, sharply pointed above; upper part of head and thorax dull, rather coarsely microscopically tessellate, with scattered punctures; the broad base of metathorax more shining, with a microscopic cancellation; upper part of thorax all black, except broad anterior corners of mesothorax, which are yellow, the yellow ending in a sharp point over the tegulæ; sides of prothorax, tubercles (except a dark dot), anterior part of pleura, a small stripe invading mesopleura, and under side of thorax all yellow; legs yellow, the hind tibiæ with a dark stripe; hind legs quite normal; tegulæ pale testaceous. Wings clear, nervures piceous; first r. n. entering apical corner of first s.m.; second s.m. narrow, its upper apical angle variably produced, but always essentially in the *Pachyprosopis* manner; stigma large, sepia-brown. Abdomen broad, the apex ferruginous; venter yellow.

*Hab.* Sydney, New South Wales, three at flowers of *Angophora*, Dec. 1, 1910 (*W. W. Froggatt*, 112 = type, and 115 in part).

Quite unlike all other *Pachyprosopis* by its yellow markings, in which it resembles one of the groups of *Euryglossa*. The head also is formed as in *Euryglossa*. The abdomen has a minute transverse tessellation, but no distinct punctures.

*Euryglossa mutica*, sp. n.

♂.—Looks exactly like *Pachyprosopis humeralis*, but on closer inspection seen to differ as follows: nervures paler, second s.m. quadrate, its upper apical angle about a right angle; no yellow frontal mark; yellow going hardly half-way up cheeks; facial fovea shorter; mesothorax entirely black; thorax rather more shining; sides of prothorax, with tubercles, and anterior coxæ, yellow, but thorax otherwise black beneath. The third antennal joint is a mere ring, as in *P. humeralis*.

*Hab.* Sydney, New South Wales, one at flowers of *Angophora*, Dec. 1, 1910 (*W. W. Froggatt*, 115, in part).

What is the real relationship of *E. mutica* to *P. humeralis*? On the venation, they go in different genera, yet they are so closely allied that I was at first convinced that they were forms of one species. I do not yet consider it satisfactorily demonstrated that *E. mutica* is not a "mutation" of the *Pachyprosopis*, but in view of the various differences I describe them as distinct. The male of *E. calliopsella*, which Professor Froggatt took on the same day as *E. mutica*, is very similar in coloration, and no doubt closely allied; but it is much larger, and has a much longer second submarginal cell, which receives both recurrent nervures. The genus *Pachyprosopis* variously grades into *Euryglossa* and becomes hard to define. It could be restricted to the species with large heads, but this seems unsatisfactory.

*Euryglossa aurantifera*, sp. n.

♀.—Length about 9½ mm.

Black, with bright chrome-yellow markings on head and thorax; head broad, inner orbits nearly parallel; clypeus (except a pair of small black marks), semicircular clypeal area, and broad supraclypeal marks bright yellow, the latter filling space between clypeus and eyes and extending broadly upwards, ending near level of upper margin of antennal sockets, the highest point nearly halfway between antennæ and eyes; mandibles and the shining labrum wholly dark; front and vertex dull, the latter with black hair; mesothorax dull, with black hair, its anterior lateral corners with a large yellow patch; tubercles broadly yellow, but pleura wholly black; scutellum, postscutellum, and axillæ yellow, not shining; area of metathorax dull, without any evident sculpture; tegulæ black. Wings clear, with piceous nervures and stigma; second s.m. long, receiving the recurrent nervures a considerable distance from its base and apex;

second t.-c. straight. Legs entirely dark, with thin pale hair. Abdomen flattened, dull at base, more shining apically, with black hair. Under the microscope the sculpture of the thorax above is seen to consist of a very minute network, the meshes elongate; there are no punctures.

*Hab.* Sydney, New South Wales, Nov. 29, 1910 (*W. W. Froggatt*, 132).

Unfortunately the specimen was broken in transit and the antennæ lost.

Very close to *E. geminata*, Ckll., but differing by the absence of yellow spots on the abdomen, the darker nervures, and the much longer second submarginal cell. Also related to *E. quadrimaculata*, Smith, which has four yellow spots on the abdomen. These insects closely resemble species of *Prosopis*.

*Meroglossa (sulcifrons* subsp. ?) *persulcata*, sp. n.

♂.—Length about 9 mm.

Black, with the face deeply sulcate on each side of the clypeus, the middle of which is strongly elevated; face-marks creamy white; thoracic markings (consisting of tubercles), a large rounded patch behind, scutellum and postscutellum (but not axillæ) bright chrome-yellow; light marks of face consisting of elevated part of clypeus, a large triangular patch on each side, a supraclypeal dot, and lateral face-marks, ending in a broad truncation a little below middle of front; there is a dark shade on each lateral mark next to the eye; malar space, labrum, and cheeks black; tongue slender and pointed; maxillary palpi very long; scape black; flagellum dark red beneath, the last joint pointed; front depressed, smooth and shining above antennæ, but beyond this punctate; mesothorax shining, strongly punctured; basal area of metathorax longitudinally finely ridged or striate; legs black, with some of the hair shining silvery; tegulæ piceous, with a yellow dot. Wings dusky, nervures and stigma dark brown, second s.m. receiving both recurrent nervures. Abdomen shining, conspicuously punctured, punctures on first segment conspicuously finer than those on second.

*Hab.* Southern Queensland (*Froggatt*, 36). Certainly very near to *Meroglossa sulcifrons* (*Prosopis sulcifrons*, Smith), but the lateral face-marks of *sulcifrons* are much more reduced. The large white area on clypeus in *persulcata* is long and narrow, a truncated cone, not "bell-shaped"; the wings of *persulcata* are distinctly dusky, not "hyaline . . . their extreme apex slightly clouded." It is possible, however, that *persulcata* is a race of *sulcifrons*.



*Prosopis nubilosella mediosticta*, subsp. n.

♀.—Larger, length about 8 mm.

Wings strongly infuscated; second s.m. not especially long; clypeus wholly black; a triangular creamy-white mark on upper part of supraclypeal area; inconspicuous linear marks at sides of front as in *nubilosella*; tubercles broadly, mesothorax and scutellum bright orange, the surface of mesothorax and scutellum dull. Abdomen pure black, finely but distinctly punctured. Head short and broad compared with *nubilosa* and its immediate allies.

*Hab.* Botany, New South Wales, Nov. 10, 1891 (*Froggatt*, 22).

This is perhaps a distinct species, but it is in any event very close to *P. nubilosella*. The legs carry three asclepiad pollen-masses.

*Prosopis quadriceps*, Smith, var. *a*.

♀.—Large (about 8 mm. long).

Legs all dark except the broadly yellow base of hind tibiae; lateral face-marks lobed above, the whole shape much like that of a snail crawling, with obtuse foot and no tentacles.

*Hab.* Kenthurst, New South Wales, Oct. 9, 1903 (*Froggatt*, 27).

I do not give this a special name, as it is probably no more than an individual variation.

*Prosopis chrysognatha*, Cockerell.

Described from Melbourne. A male (*Froggatt*, 30) is labelled "A. decur., Nest," March 10, 1893. It differs from the type in having the first r. n. meeting first t.-c. We are doubtless to understand that it nests in *Acacia decurrens*.

*Prosopis alcyonea*, Erichs.

Both sexes from National Park, New South Wales, Dec. 10, 1909 (*T. McC.*; sent by *Froggatt*).

*Prosopis impressifrons*, Smith.

Described from "New Holland." A male before me is from Kenthurst, New South Wales, October 1903 (*Froggatt*, 32). The second to fourth ventral segments of abdomen have a rather inconspicuous tubercle on each side. The scape is extremely thick.

*Prosopis desponsa*, Smith.

Described from "New Holland." A female before me is from Heathcote, New South Wales, June 28, 1894 (*Froggatt*, 21). Smith says, "this is probably the female of *P. impressifrons*," and I believe this suggestion is correct.

*Prosopis morosa*, Smith.

Described from "Australia." A female before me is from Como, New South Wales, Nov. 1, 1902 (*W. W. Froggatt*, 31).

*Prosopis perplexa*, Smith.

Described from "New Holland." Mr. Froggatt has taken females at Mosman's Bay (Oct. 4, 1892) and Hornsby (Feb. 22, 1894), New South Wales. The venation varies, the first r. u. joining the first t.-c. or entering the first s.m.

*Prosopis elegans*, Smith.

Kenthurst, New South Wales, Feb. 1904 (*Gallard*). A male of var. *sydneyana* (Ckll.) is from Wellington, N.S.W., 1896 (*Froggatt*).

*Prosopis aureomaculata*, Cockerell (? = race of *nubilosa*, Sm.).

Additional specimens (males) collected by Mr. Turner at Mackay, Queensland, in May, show that *subnubilosa*, Ckll., completely intergrades, and must be regarded only as a variation. The range of *P. aureomaculata* is greatly extended by males from Como, N.S.W., Nov. 1, 1902 (*Froggatt*), and females from Kenthurst, N.S.W. (*Gallard*), and Sydney, N.S.W., at *Angophora*, Dec. 1 (*Froggatt*).

*Prosopis amicula*, Smith.

Described from Champion Bay. Females were collected by Mr. Froggatt at Wellington, N.S.W., 1891; and Sydney, at flowers of *Angophora*, Dec. 1, 1910.

*Prosopis flavojugata*, sp. n.

♀.—Length about  $5\frac{1}{2}$  mm.

Black, with a variable but small yellow spot on each side of clypeus, the swollen upper margin of prothorax and the tubercles bright chrome-yellow, but no other yellow about the insect, the legs wholly black, the tegulæ entirely dark; flagellum very dark reddish beneath; head and thorax dull;



abdomen with the first segment smooth and shining, the others dull. Wings clear, nervures and stigma very dark brown; second s.m. large, subquadrate, receiving both recurrent nervures. The mesothorax is microscopically tessellate, with excessively minute punctures; the abdomen, beyond the first segment, has a microscopical transverse striation.

*Hab.* Como, New South Wales, two taken Nov. 1, 1902 (*Froggatt*, 35).

Looks at first sight like *P. amacula*, but easily separated by the reduced face-markings and entirely dark legs; *amicula* also has a delicately punctured abdomen, without any abrupt contrast between the first and second segments. It also recalls *P. nigropersonata*, Ckll., but that has a blue abdomen.

*Prosopis xanthaspis*, Cockerell.

The male, not before described, is very small (hardly  $5\frac{1}{2}$  mm. long).

Clypeus, labrum, and cuneate lateral face-marks (strongly notched above) primose-yellow; no supra-clypeal mark; yellow ornaments of thorax as in the female, except that the yellow of the tubercles is paler and reduced in amount, while the bright chrome-yellow patches of the scutellum and postscutellum are smaller (shorter), and there are no axillar spots; anterior tibiae in front, hind tibiae broadly at base, and all the basitarsi, white or very pale yellowish; metallic tint of abdomen very obscure.

*Hab.* Mackay, Queensland, March 1900 (*Turner*, 15 a). Two specimens.

In my table of Australian *Prosopis*, this runs to *P. metallica*, Sm., which has a strongly punctured abdomen; or among the non-metallic species to the group of *honesta*, *simillima*, and *metallica*, differing by its small size and the face-markings.

*Prosopis scintilla*, sp. n.

♀.—Length about 4 mm.

Looks like *P. eugeniella*, but face-marks reduced to a slender cream-coloured line along rather more than the middle third of the inner orbital margins; labrum and mandibles ferruginous; antennæ dark brown above, pale testaceous beneath (including scape), the flagellum thick; head round seen from in front; head and thorax dullish, abdomen convex, shining; thorax with no light markings; knees, anterior tibiae in front, and all the tarsi ferruginous;

tegulae testaceous. Wings clear, nervures and stigma dark reddish brown; stigma ordinary, considerably smaller than in *P. eugeniella*; recurrent nervures meeting the transverso-cubitals; vertex and mesothorax rough and coarsely punctured, the latter with scattered pale hair. Abdomen with very sparse excessively minute punctures, and minute transverse lineolation.

*Hab.* Mackay, Queensland, at flowers of *Eucalyptus*, Dec. 1899 (*Turner*, 1082). British Museum.

*Prosopis ancorata*, sp. n.

♂.—Length nearly  $4\frac{1}{2}$  mm.

Black, with creamy-white markings; head and thorax minutely granular-punctate; eyes converging below, face rather narrow; labrum and mandibles, clypeus (except a large euneiform black mark on each side), and lateral face-marks, the latter long and narrow, filling space between clypeus and eye, abruptly notched by antennal sockets, and ending in a line a short distance above level of antennae; no supra-clypeal mark; scape very short, cream-coloured on outer side; flagellum long, light ferruginous beneath; prothorax with two white lines on upper border and a small spot on tubercles; no other light colour on thorax; area of metathorax very large, semicircular, with irregular rugae; tegulae piceous with a light spot. Wings clear, with dark nervures and stigma; first r. n. entering second s.m., second r. n. joining second t.-c.; second s.m. rather long; anterior tibiae in front, and anterior and middle knees, ferruginous or testaceous; hind tibia narrowly at base, and hind basitarsus, white. Abdomen somewhat shining, scarcely punctured; venter normal.

*Hab.* Sydney, New South Wales, at flowers of *Angophora*, Nov. 24, 1910 (*Froggatt*, 107, in part).

In my table runs to 35, and runs out on account of the cream-coloured face-markings, which resemble those of *P. aureomaculata*, although the face is so much shorter than in *ancorata*.

*Prosopis eburniella*, sp. n.

♂.—Size and appearance of *P. ancorata*, but differing as follows: face broader and shorter, entirely ivory-white beneath the level of the antennae, with a supra-clypeal mark which is about twice as broad as long, the lateral marks ending obliquely above, at an angle of about  $45^\circ$  with orbit, but at extreme apex prolonged along orbital margin in a small finger-like tip; flagellum much shorter, but scape

longer, black with an ivory-white mark near apex; thorax more shining; white lines on prothorax very narrow, but tubercles broadly white; area of metathorax hardly sculptured; tegulæ entirely black. Wings dusky; second s.m. shorter; anterior tibiæ in front, spot at base of middle tibiæ, basal half of hind tibiæ, and all the basitarsi white; apical part of abdomen above with short dark hair.

*Hab.* Sydney, New South Wales, at flowers of *Angophora*, Nov. 24, 1910 (*Froggatt*, 107, in part).

This runs to about the same place in the table as *P. ancorata*, but is very distinct from it. Except for the much shorter face, the face-markings resemble those of the European *P. hyalinata*.

*Meroglossa parallela* var. *recessiva*, v. nov.

♂.—No light mark on pleura behind tubercles; light marks on scutellum absent or reduced to a small spot, on postscutellum reduced to a small spot on moderately large triangular mark.

*Hab.* Mackay, Queensland, at flowers of *Xanthorrhœa*, April 1900, also taken in May (*Turner*, 853). British Museum.

*Prosopis albonitens* var. *chromatica*, v. nov.

♀.—Light colour of prothorax and tubercles bright chrome-yellow.

*Hab.* Mackay, Queensland, at flowers of *Xanthorrhœa*, May 1899 (*Turner*, 712, in part). British Museum.

The mesothorax is more finely punctured than usual.

XV.—*Descriptions of new Species of Pyralidæ of the Subfamily Pyraustinæ.* By Sir GEORGE F. HAMPSON, Bart., F.Z.S., &c.

THE following descriptions of new *Pyraustinæ* are supplementary to my papers on the classification of that subfamily in the 'Proceedings of the Zoological Society,' 1898, pp. 590–761 and 1899, pp. 172–291. The numbers given refer to the position of the species in the genera in those papers. The types are in the British Museum, when not otherwise stated.

(4) *Neurophyseta camptogrammalis*, sp. n.

*Hydrocampa clymenalis*, Druce, Biol. Centr.-Am., Het. ii. p. 275 (part.), nec Wlk.

Fore wing with no glandular swelling on vein 1.